TANYPENAEUS CARIBEUS, A NEW GENUS AND SPECIES OF THE SHRIMP FAMILY PENAEIDAE (CRUSTACEA, DECAPODA) FROM THE CARIBBEAN SEA

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ABSTRACT

A new genus, *Tanypenaeus*, closely related to *Trachypenaeus*, is proposed for a new species, *Tanypenaeus caribeus*, which is described and illustrated. The species has been found only off the Caribbean coast of Colombia, at a depth of 155-157 m.

INTRODUCTION

During the cruise made by the R/V JOHN ELLIOT PILLSBURY along the northern coast of South America in 1968, the specimens representing the new genus and species described herein were collected at a single station, off the coast of Colombia.

The new shrimp is a member of the "Trachypenaeus series" of Burkenroad (1934), and is the fourth genus of that group to be found in the western Atlantic. Two of the other three genera are represented in this area by a single species each, *Trachypenaeopsis mobilispinis* (Rathbun, 1920) and *Xiphopenaeus kroyeri* (Heller, 1862), and the third by *Trachypenaeus constrictus* (Stimpson, 1871) and *Trachypenaeus similis similis* (Smith, 1885). All live in shallow waters, mostly within 50 m depth, but some as deep as 80 m, and except for *T. mobilispinis*, of which there are few records, they are widely distributed and abundant; *X. kroyeri* is intensively fished in some areas, and both species of *Trachypenaeus* are mixed with other penaeid shrimps in the commercial catches. The new species is the only one of the western Atlantic members of that group of genera which apparently occupies the deeper waters of the Continental Shelf, a rather poorly known area, which might be the reason it has not been previously discovered.

ACKNOWLEDGMENTS

Appreciation is here extended to Gilbert L. Voss who made available to me the vast collections of penaeids taken during the cruises of the R/V JOHN ELLIOT PILLSBURY, among which were found the specimens of the new species. Horton H. Hobbs, Jr., and Thomas E. Bowman offered critical comments that improved the manuscript. Discussions with Fenner A. Chace, Jr., have been very helpful. María M. Diéguez prepared the draw-

ings. The types are in the National Museum of Natural History, Smithsonian Institution (USNM).

Measurements

All measurements are in millimeters. Carapace length (c.l.) is measured from the orbital margin to the midposterodorsal margin of the carapace, and total length, from the apex of the rostrum to the posterior end of the telson. Most of the terminology utilized in the following description has been discussed and illustrated by Pérez Farfante (1969).

Genus **Tanypenaeus**, new genus

Diagnosis.—Body slim and pubescent. Rostrum slender, long, with dorsal teeth only. Carapace with longitudinal suture; transverse suture indistinct or absent; cervical sulcus shallow; hepatic sulcus well marked; postocular sulcus deep; antennal carina well developed; orbito-antennal sulcus and gastro-orbital carina absent. Pterygostomian angle lacking spine. Abdomen with low, but sharp, middorsal carina posteriorly. Telson with movable, lateral spines. First antennular segment without spine on mesioventral margin. Antennular flagella filiform, considerably unequal in length, dorsal one much longer than carapace. Palp of first maxilla unsegmented and broad. Exopods on all maxillipeds and pereopods, those on first four pairs of pereopods well developed and petaloid, exopods of fifth pair vestigial. Spine on basis of first and second pereopods, and on ischium of first. Fourth and fifth pereopods very slender, subfiliform. Petasma with lateral lobes produced distolaterally into paired hornlike projections. Appendix masculina thick, subglobular, bearing setae on distal and mesial margins. Thelycum with single plate on sternite XIV invaginated anteriorly forming median pocket bearing paired apertures of internal seminal receptacles. Podobranchia on second maxilliped. Pleurobranchiae on somites IX to XII; rudimentary arthrobranchiae on somite VII, well-developed anterior and posterior arthrobranchiae on somites VIII to XII, and well-developed posterior and vestigial, unfilamentose, anterior arthrobranchiae on XIII; epipods on first and second maxillipeds, and first through third pereopods, those of first and second pereopods deeply bifurcate.

Type-Species.—*Tanypenaeus caribeus*, new species.

Etymology.—The generic name is derived from the Greek *tanyo*, to stretch out, in combination with the generic name *Penaeus*, alluding to the slim body. Gender, masculine.

Relationships.—*Tanypenaeus* resembles *Trachypenaeus* Alcock, in lacking a pterygostomian spine, having a longitudinal suture on the carapace, exopods on all thoracic appendages, the same branchial formula, and basically

similar petasma. It differs from *Trachypenaeus*, however, in having a slim body; a pronouncedly long and slender rostrum; filiform antennular flagella, markedly unequal in length, and conspicuously longer than carapace; subfiliform fourth and fifth pereopods; and a vestigial exopod on the fifth pereopod.

Tanypenaeus caribeus, new species
Figs. 1-6

Material.—HOLOTYPE: ♀, 21 mm carapace length, 31.5 mm rostrum length, about 110 mm total length; off Punta Faro, Colombia (11°08'N, 74°47'W), 155-157 m, July 31, 1968, PILLSBURY sta 788, USNM 138267.

ALLOTYPE: ♂, 16 mm carapace length, 26.5 mm rostrum length, about 91 mm total length, USNM 138268.

PARATYPES: 15 ♂, 8.5-18 mm carapace length; 3 ♀, 9-18.5 mm carapace length, USNM 138269.

Allotype and paratypes taken with holotype.

Description.—Body slender and densely covered with fine, short setae (Fig. 1); carapace with pair of small, crescent-shaped to semicircular impressions at about 0.3 length from posterior margin, flanking postrostral carina. Rostrum very long, about 1.8 times length of carapace, slender and sinuous, with proximal part sloping downward and distal part ascending to almost horizontal, slim tip. Rostral teeth 12-14 + epigastric; first tooth situated approximately at level of orbital margin, followed by four or five large teeth, remaining teeth diminishing in size distally, and distributed along margin to base of short apex; small epigastric tooth located at about 0.3 of carapace length from level of orbital margin. Adrostral carina extending from midway between epigastric and first tooth to base of tip, following rostrum curvatures. Postrostral carina long, reaching almost to posterior margin of carapace, slightly higher anteriorly than posteriorly. Orbital angle barely produced into minute spine. Gastro-orbital carina and orbito-antennal sulcus absent. Postocular sulcus short and deep. Longitudinal suture well marked, short, about 0.25 of carapace length. Transverse suture indistinct or absent. Antennal and hepatic spines rather long, slender and sharp. Antennal carina prominent, ending well anterior to apex of hepatic spine. Antennal and hepatic regions clearly delimited by conspicuous depression. Pterygostomian angle obtuse. Cervical sulcus shallow, and short, about 0.25 length of carapace, ending posteriorly well below middorsum of carapace. Hepatic carina blunt, and hepatic sulcus rather deep, anteroventrally slightly inclined to about apex of hepatic spine, there turning gently more ventrally, their length about 0.3 length of carapace. Branchiocardiac carina well developed, and long, about 0.4 length of carapace.

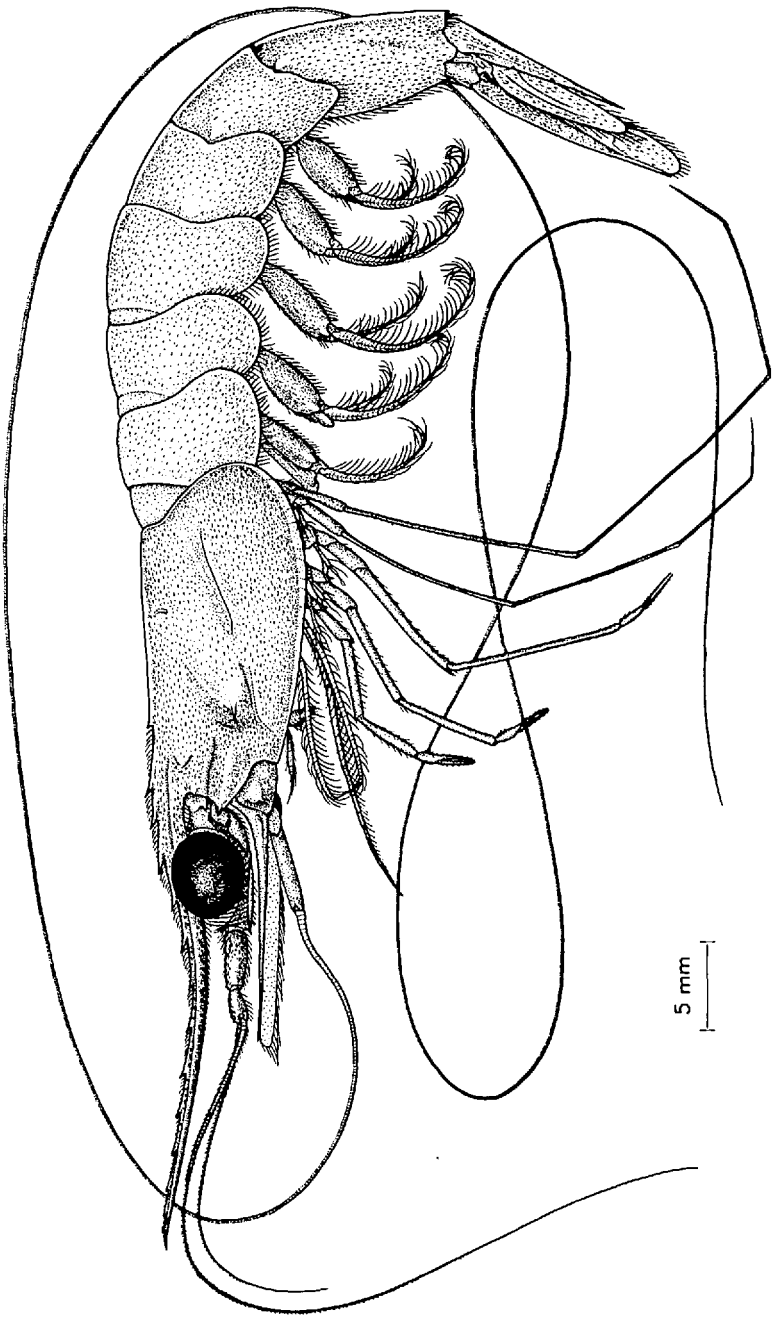

FIGURE 1. *Tanypenaeus caribeus*, n. sp., paratype (USNM 138269): lateral view, ♂, 16.5 mm c.l.

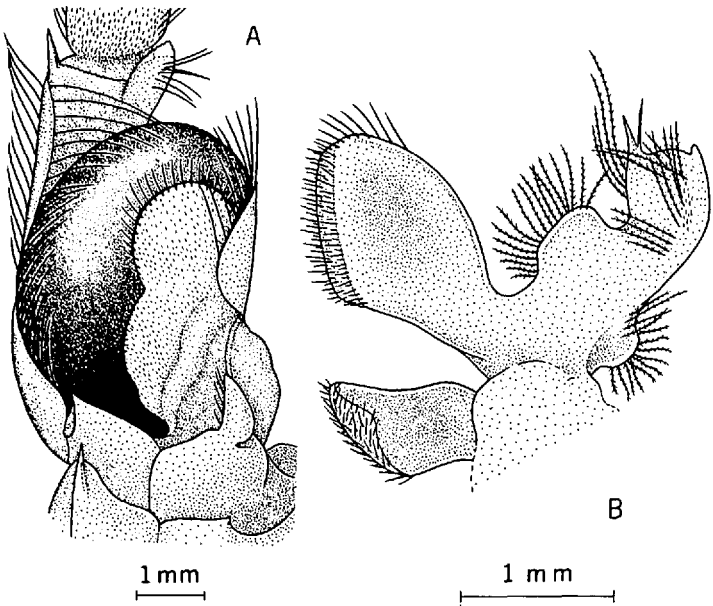

FIGURE 2. *Tanypenaeus caribeus*, n. sp., paratypes (USNM 138269): A, eye and first segment of antennular peduncle, ♂, 14.5 mm c.l.; B, dorsal view of right first maxilla, ♂, 16 mm c.l.

Eye (Fig. 2, A) with large, subspherical cornea; distolateral margin of optic calathus bearing long setae overlapping adjacent corneal surface.

Antennular flagella markedly unequal in length; dorsal (lateral) flagellum very long, about 3 times length of carapace in shrimp with 15 mm carapace length, slightly broader proximal part about 0.2 length of flagellum; ventral (median) flagellum filiform along entire length, and almost 0.5 length of dorsal flagellum. Antennular peduncle about 0.75 length of carapace; first segment with distomesial margin bearing subtriangular, scalelike projection, densely covered with long setae (to reveal contour of scale, only few setae represented in Fig. 2); distolateral spine rather long, sharp, forming obtuse angle with longitudinal axis of peduncle, and pointing anterodorsally; prosartema relatively short, extending to about 0.7 length of segment; stylocerite short, attaining about 0.4 distance between its proximal end and base of distolateral spine, produced distally into minute spine.

Antennal flagellum long, about 3 times total length of shrimp; carpocerite very elongate, length about 3 times width; scaphocerite elongate, length about 3 times maximum width, and exceeding antennular peduncle by about 0.15 its own length; lateral, thickened portion produced distally into sharply pointed spine, overreached by lamella.

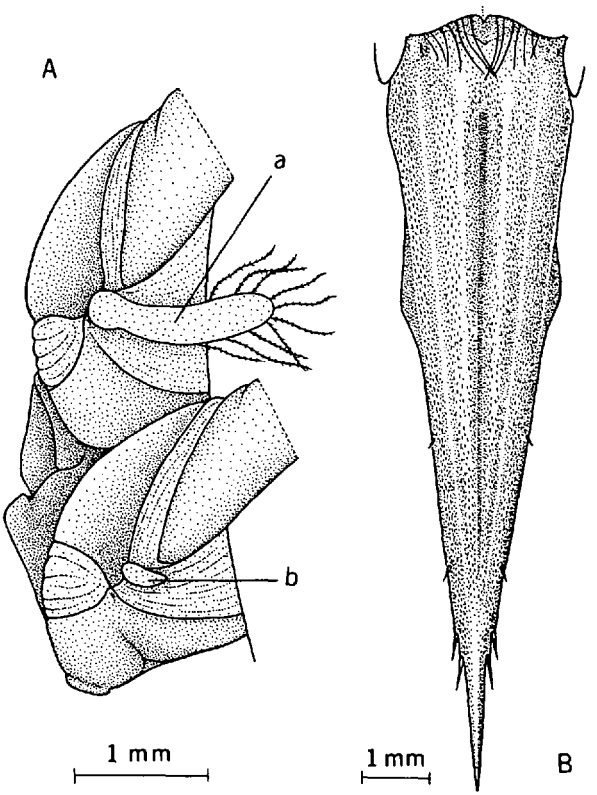

FIGURE 3. *Tanypenaeus caribeus*, n. sp., paratypes (USNM 138269): A, proximal part of fourth and fifth pereopods, ♀, 18.5 mm c.l. (a, exopod of fourth pereopod; b, vestigial exopod of fifth); B, telson, ♂, 14 mm c.l.

First maxilla (Fig. 2, B) with palp unsegmented, broad, bearing small but prominent lobe on proximolateral margin, and relatively large lobe on proximomesial margin, both with long, plumose, marginal setae; distomesial angle produced into long, acute projection, armed with basal, slender spine.

Third maxilliped extending to distal end of carpocerite or exceeding it by as much as 0.5 length of dactyl; first pereopod reaching to between proximal 0.75 length and distal end of carpocerite; second pereopod surpassing carpocerite by 0.5 to entire length of dactyl; third pereopod exceeding antennular peduncle by, at least, tip of dactyl and, at most, by length of propodus; chelipeds with rather long fingers, their length about 0.66 that of palm. Fourth pereopod subfiliform, and surpassing antennular peduncle by length of dactyl and, at least, 0.5 length of propodus; fifth pereopod subfiliform and very long, exceeding antennular peduncle by

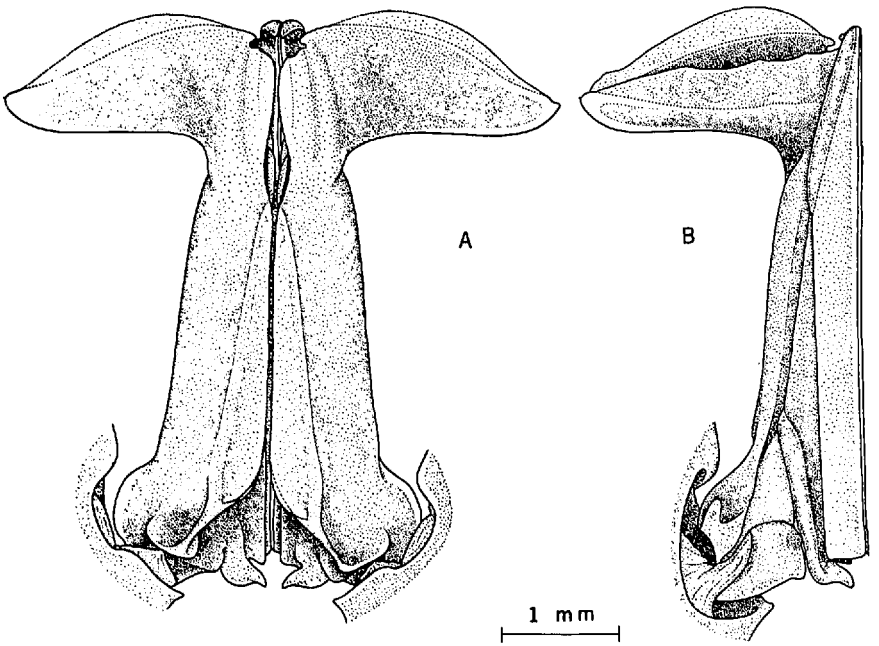

FIGURE 4. *Tanypenaeus caribeus*, n. sp., ♂, allotype (USNM 138268): A, petasma, ventral view; B, dorsal view of left half of same.

length of dactyl, propodus, and about 0.2 length of carpus. Spine absent from basis of third maxilliped; long, slender spine on basis of first and second pereopods; minute spine on ischium of first pereopod. Exopods on all maxillipeds and pereopods, those of fifth pair of pereopods extremely vestigial (Fig. 3, A). Branchiae as for the genus.

Abdomen with middorsal carina extending from third to sixth somite, carina rather acute on third, and sharp from fourth to sixth somites; fourth and fifth somites with posteromedian, narrow notch; sixth somite elongate, length about 1.80 times height at base, bearing small middorsal spine posteriorly, rather minute spine at posteroventral angle, and lacking cicatrices. Telson (Fig. 3, B) extending posteriorly almost as far as inner ramus of uropod, with deep median sulcus, anteriorly flanked by paired rounded carinae, and bearing long, fine, but clearly distinct, paired carinae parallel to lateral margins; terminal portion (from mesial base of posteriormost pair of spines to apex) extremely slender and long, its length six to seven times as long as width at base; telson armed with four pairs of lateral movable spines, posterior two pairs longer than anterior two, anteriormost pair very minute; longitudinal distance between paired spines decreasing

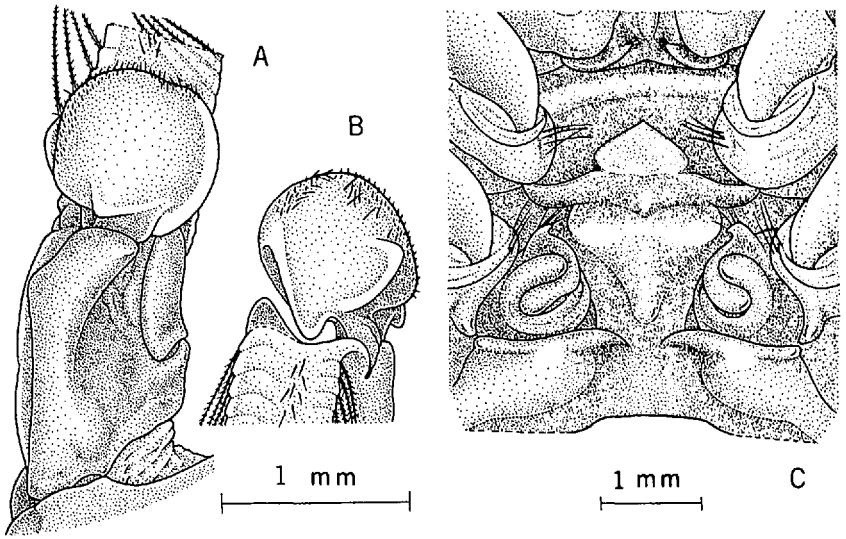

FIGURE 5. *Tanypenaeus caribeus*, n. sp., ♂, allotype (USNM 138268): A, dorsal view of right appendix masculina and proximal part of endopod; B, ventral view (mesially inclined) of same specimen with endopod displaced; C, sternites XIII and XIV.

posteriorly. Outer ramus of uropod exceeding inner ramus by almost 0.2 its own length.

Petasma (Fig. 4, A, B) with paired, broad, hornlike distolateral projections, opening dorsally near distal margin by long, transverse slit; ventral wall of horns produced forward into relatively large, crescent-shaped, membranous flap, and bearing small, distomesial prominence; distomedian projections, supported by strongly curved ribs, overhanging, and almost closing distoventral aperture of petasma. Ventrolateral lobule almost entirely cornified, including ventral wall of horns and dorsally reflexed margin; proximomesial portion of lobule bearing rather flexible strip, tapering to about base of distal third of margin, and distomesial portion consisting of flexible, subelliptical flap. Dorsolateral lobule bearing rib on about proximal fourth, proximalmost part turning mesially and forming projection resembling inverted head of bird. Length of petasma—from distomesial extremity to proximal margin of dorsolateral lobule—subequal to width at level of distolateral projections.

Appendix masculina (Fig. 5, A, B) thick, almost subglobular, about as wide as long, with dorsal wall heavily sclerotized, and glossy; mesial and distal portions pliable, and covered with continuous band of setae; ventral wall bearing paired rigid prominences, mesial one larger than proximo-

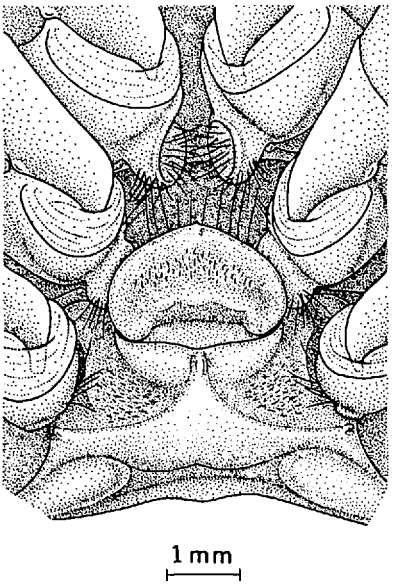

FIGURE 6. *Tanypenaeus caribeus*, n. sp., ♀, holotype (USNM 138267): thelycum.

lateral. Proximodorsal part of endopod with corneous, roughly trapezoidal sclerite, bearing strong mesial ridge, curving distolaterally, and articulating with appendix.

In males, median plate at posterior margin of sternite XIII short, subtriangular, bearing minute apical spine, and feeble longitudinal midrib (Fig. 5, C). Anterior part of sternite XIV bearing subtriangular prominence with anteriorly situated base forming paired, horizontal, strong ribs, and posterior apical portion elevated as short rib.

Thelycum (Fig. 6) with posterior part of sternite XIV produced medially and continuous, without interruption, with prominent midrib, latter ending at median pocket; anterior part of sternite XIV with paired elevations, tapering anterolaterally, parallel to posterior lip of transverse opening of median pocket, and flanking midrib; lateral portions of anterior part covered with short setae. Median plate of sternite XIII subreniform in outline, its lateral portions extending posteriorly as small, rounded projections; plate short, its length 0.50 to 0.60 times maximum width, setose and slightly depressed anteriorly, strongly so posteriorly, and with convexly rounded, sharp, anterior margin bearing minute median spine, and numerous setae. Median pocket—resulting from invagination at level of lip—with paired apertures of internal seminal receptacles on dorsal wall, adja-

cent to posterior margin of sternite XIII; in impregnated females, pocket occupied and its transverse opening plugged by glutinous material accompanying spermatophores.

Seminal receptacles consisting of paired, longitudinally arranged, trilobed, membranous sacs; single, large, posterior lobe, and two small, anterior lobes, one directed mesially, and other, laterally.

Etymology.—Named *caribeus* for Mar Caribe where the type-locality is located.

Distribution.—Known only from the type-locality.

Relationships.—*Tanypenaeus caribeus* seems to be most closely related to those species of *Trachypenaeus* which Burkenroad (1934) grouped in Section 2 of his subgenus *Trachysalambria.* All of them share a short longitudinal suture, a lack of spines on the bases of the first and second pereopods, and a thelycal plate on sternite XIV bearing an anterior median pocket, and not produced forward into paired flaps. The distinctive characters given for the genus, however, readily distinguish *T. caribeus* from the members of the species-group mentioned above.

SUMARIO

Tanypenaeus caribeus, GÉNERO Y ESPECIE NUEVOS DE CAMARONES DE LA FAMILIA PENAEIDAE (CRUSTACEA, DECAPODA) DEL MAR CARIBE

Se propone un nuevo género, *Tanypenaeus*, afín a *Trachypenaeus*, para una nueva especie, *Tanypenaeus caribeus*, que se describe e ilustra. Veinte especímenes fueron colectados desde el buque JOHN ELLIOT PILLSBURY en el Caribe, frente a Punta Faro, Colombia, entre 155 y 157 m de profundidad. En el Atlántico occidental, éste es el único del grupo de cuatro géneros afines (que incluye, además, *Trachypenaeopsis* y *Xiphopenaeus*) que vive a más de unos 80 m. El camarón que se describe se distingue principalmente de todas las especies de *Trachypenaeus* por tener el cuerpo esbelto; el rostro largo, delgado y armado de 12 a 14 dientes—en adición a un pequeño diente epigástrico—distribuídos hasta cerca del ápice; los dos flagelos antenulares filiformes, desiguales entre sí, el ventral aproximadamente igual a la mitad del dorsal, y muy largos, el dorsal hasta tres veces más largo que el caparazón; el exópodo del quinto par de pereópodos vestigial, y el cuarto y quinto pares de pereópodos muy largos y filamentosos.

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